AMENDMENTS TO THE CLAIMS

Claim 1 (Previously presented) An extrusion-free wet cleaning process for post-etch Cu-dual damascene structures, the process comprising:

providing a wafer comprising a silicon substrate and at least one post-etch Cu-dual damascene structure, the post-etch Cu-dual damascene structure having a via structure exposing a portion of a Cu wiring line electrically connected with an N^+ diffusion region of the silicon substrate and a trench structure formed on the via structure;

executing an oxidation step by applying a diluted H_2O_2 solution to the wafer to slightly oxidize the surface of the exposed Cu wiring line; and

washing away cupric oxide generated in the oxidation step by means of a cupric oxide cleaning solution containing diluted HF, NH_4F or NH_2OH having a pH of above 7.

Claim 2 (Original) The process of claim 1 wherein the Cu wiring line electrically connected with an N^+ diffusion region of the silicon substrate serves as a cathode in the cupric oxide cleaning solution.

Claim 3 (Original) The process of claim 1 wherein the method of preventing Cu reduction reactions on the Cu wiring line comprises purging inert gas onto the wafer during the application to the wafer of the diluted H_2O_2 solution.

Claim 4 (Original) The process of claim 1 wherein the method of

preventing Cu reduction reactions on the Cu wiring line comprises adding a Cu corrosion inhibitor to the diluted H_2O_2 solution.

Claim 5 (Original) The process of claim 4 wherein the Cu corrosion inhibitor comprises benzotriazole (BTA).

Claim 6 (Previously presented) The process of claim 1 wherein the method of preventing Cu reduction reactions on the Cu wiring line comprises reducing the H_2O_2 concentration of the diluted H_2O_2 solution to below 100:1 (v/v) of solvent to H_2O_2.

Claim 7 (Original) The process of claim 1 wherein the method of preventing Cu reduction reactions on the Cu wiring line comprises lowering the temperature of the diluted H_2O_2 solution to below 15℃ during the application to the wafer of the diluted H_2O_2 solution.

Claims 8-19 (Cancelled)